

SSSSSS	MM	MM	UU	UU	GGGGGG	BBBBB	YY	YY	TTTTTT	EEEEEE	SSSSSS
SS	MMMMMM	UU	UU	GG	BB	BB	YYYY	TT	EE	SS	
SSSSSS	MM	MM	UU	UU	GG GG	BBBBB	YY	TT	EEEE	SSSSSS	
SS	MM	MM	UU	UU	GG GG	BB	BB	YY	TT	EE	SS
SSSSS	MM	MM	UUUUUU	GGGGGG	BBBBB	YY	TT	EEEEEE	SSSSSS		

 VOLUME 10, NO. 4 JULY 1993 PRICE 0.75
 SINCLAIR MILWAUKEE USER GROUP P.O. BOX 101 BUTLER, WI 53007

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* 3rd Sat of Month 353-4522 *	* but you must supply copy. *
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* Call for Information 421-0179 *	* monthly publication but cannot *
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Of Mice and Men

New scientific disciplines and endeavors have a big advantage over well established ones in that there are no set guidelines for how anything is done or accomplished. The encrustation of age come later.

For example, back in the dawn of the computing era when programs were hand wired as were memories, the byte was only 3 bits long and counting in octal was in vogue. But a byte couldn't hold enough numbers for a decade so a 4th bit was added creating hexadecimal counting with the very original? use of the letters A through F to represent the notations of the tenth to fifteenth digits. This new 4 bit byte was called the "nybble". Special commands were added to handle decimal notation in the CPU. Soon two nybbles were added to create the 8 bit byte so that it could hold both a high and a low decimal number. Assembly languages were unheard of and one didn't waste memory storing the program. Logic gates were separate devices.

It didn't take very long for the byte to evolve this far. Everything was in a state of flux. Everything was growing rapidly with new ideas coming thick and fast. Things were really moving. Machines were proliferating all over the place, each with its own protocols. A person could speak his thoughts and someone would listen. Or one could write an article and get it published.

But how much has the byte evolved since? None at all. The idea was frozen for all time. So also were a lot of other things. Computing hardware was "getting set in its ways". Nowhere along the way did a committee meet and say, "This is the best way to do things so let's make it a standard." as was the wont of electrical engineers. But it didn't take long. Just a decade or two. If one tried changes now or even spoke of

them one would be the "voice of one crying in the wilderness." Right or wrong, protocols and standards have a tendency to stop experimentation and prevent further evolution.

Some of this is necessary to bring sense to the helter skelter, everyone on his own, or worse, "Our captive customers will do it this way just so its NOT compatible with company Z's product." In a certain sense it was the leader of the pack setting the standards which everyone tried to copy that brought us the "clones". But when the leader went her (now days everything is feminine gender!) own way to try to captivate customers, nobody followed.

The computer industry is typical of the rest of science in general only on a compressed time scale. Whereas Physics or Chemistry would take a century or two to evolve to a particular point, computing did it in 1/3rd the time. The sifting and winnowing is much faster. It is now the time of the genetists.

To get papers published in a prestigious scientific journal requires "peer review". First, to even get up for review you have to be somebody of note or come from an institution of note. Being a professor or worse, a student from a 2nd or 3rd rate college won't even get your paper up for review. Once in for review it had better be quite close to the thinking of the people reviewing it--your peers, if it is going to pass muster. Generally, it doesn't make it without a few revisions. If its too far out of line it will be rejected outright unless you have a guardian sponsor guiding it through and backing you all the way on the review committee. Thus, our present method of publication has a strong tendency to continue the status quo (mice, oft times blind) and stifle new ideas (men).

New, radical ideas in an established

held most times get published by younger professionals in obscure journals that the mainstream of the industry or profession never read. As such, great ideas get buried only to be discovered decades and sometimes a century later (some of the stuff in mathematics has been around that long before getting re-discovered and finally put to use). Some of the fault of this is in the rashness of the young men doing the writing. A less radical approach with moderation would have won the day. So there is something to say about the temperance and wisdom of age. Let's just say that the present method of publication doesn't promote new ideas as well as it should.

One branch of science in particular seems to have produced a fossil--namely astronomy. The Big Bang theory has been around since the '20s and has been patched and repatched so often and still is so full of holes (unexplained facts) it resembles a teenagers favorite jeans (books have been written on what is all wrong with the theory!). Its only saving grace is the explanation of the "red shift" of starlight. To some astronomers this has turned into the "Doppler Red Shift Law". A scientific law means that it has been proven beyond any shadow of doubt. Most science today is just in the "theory" stage...one or two big steps removed from being a law.

The main endeavor today is the search for the Theory of Everything--one grand set of equations that explains the entire cosmos from 10^{-10} to 10^{100} meters, past, present and future--essentially combining the Unified theory of quantum mechanics (still missing gravity, and still hunting for missing quarks, gluons and the elusive gravitron) with the Big Bang. Then for all practical purposes Physics will be a completed science. Once again, as in the 1880's Physics will be lamenting its demise.

I find this attempt quite premature. We are a far ways away from being able to write the final equations of a theory of everything especially when one considers the language we have to write this theory in (mathematics) is still clumsy and very incomplete. (Over 90% of the differential equations have no solutions!) The string theories of mathematics still must be worked out. Theoretists sometimes have to invent their own mathematics just like Newton (fluxions of calculus) and Einstein (statistical calculus). Or, if you are religious, "Who do you think you are, God?" After all, this theory will explain creation and Armageddon (not the battle but the end of the universe)!

But then on the other hand the easiest office that one can set up would be one for theoretical work. All you need is a room and a personal computer with a word processor. After all, you don't have to "prove" anything--just write.

Want proof? Take "black holes"--stars with infinite density. They are black because not even light can escape. Well, infinite density means zero occupied space which means no radius and infers that it has no spin momentum. One big gigantic black hole is responsible for the start of the Big Bang in the first place. BUT, these holes can radiate energy! Whoops, I thought black holes were so strong in gravity that not even light can escape. Well, energy means light, be it in the ultra-violet, visible, infra-red, heat waves or radio waves. Its all light and its all quantized. Tiny black holes are so hot that they can radiate away energy even though normal temperature? energy can't escape.

BULL! Energy doesn't have temperature. If a photon gets too energetic it turns this energy into mass. Do you get the feeling something is wrong here? Well, a theory doesn't have to make sense, just sound scientific.

2068 Code Bytes--#4
by Lloyd Dreger

Although this routine is used in a game it can be used anywhere a menu is desired. Like the previous routines in this set, much use is made of the Basic routines already in ROM--if we have to waste 16K of memory we might as well take advantage of it.

This is a general menu routine that is called with the following registers set:

B=# of items in menu

C=What column to run the cursor from. The printing will start one column beyond that. Sorry but each menu starts at the top of the screen at line 0. At least you can have left, middle and right menus if you need submenus.

DE= address of menu names -1. (What each line will say.) Menu items must be consecutive in this list and must not be so long as run onto a 2nd line of screen. The last letter of each line must have bit 7 set as a flag to indicate the end--see how this is used in PX. PN and PM also use PX but are not used to print the menu.

PrintMENU prints the menu and calls MoveCURsor which runs the menu by moving the cursor up and down and automatically recycling when at the top or bottom.

SetTV sets the screen to top screen while GetTV returns the screen to the previous setting.

GETINPut is a general input routine that works for both keyboard and joystick.

The routines can be located anywhere. In CONQUEST its located at 60148 and that address is used for the present code.

TV EQU 23612 (A FLAG IN BASIC VARIABLES)
TVF EQU 52359 (SAVE SPACE IN GAME VARIABLE TABLE)
60148 58,60,92 STV LD A,(TV)
60151 50,135,204 LD (TVF),A
60154 203,135 RES 0,A FORCE
UPPER SCREEN

60156 50,60,92 ST LD (TV),A
60159 201 RET
60160 58,60,92 STVO LD A,(TV)
60163 50,135,204 LD (TVF),A
60166 203,139 SET 0,A FORCE
LOWER SCREEN
60168 24,242 JR ST

60170 58,135,204 GTV LD A,(TVF)
60173 50,60,92 LD (TV),A
60176 201 RET

60177 to 60184 is another short routine not used here

60185 50,94,235 PMENU LD (LINE),A
60188 205,244,234 CALL STV
60191 120 LD A,B
60192 50,93,235 LD (JFLAG),A
60195 197 PUSH BC
60196 213 PP PUSH DE
60197 197 PUSH BC
60198 62,22 LD A,22 DO AN AT
60200 215 RST 16
60201 58,92,235 LD A,(JFLAG)
60204 71 LD B,A
60205 58,94,235 LD A,(LINE)
60208 128 ADD A,B
60209 193 POP BC
60210 144 SUB B
60211 197 PUSH BC
60212 215 RST 16
60213 193 POP BC
60214 121 LD A,C
60215 197 PUSH BC
60216 215 RST 16
60217 193 POP BC
60218 209 POP DE
60219 197 PUSH BC
60220 205,80,235 CALL PX
60223 193 POP BC
60224 16,226 DJNZ PP
60226 193 POP BC
60227 205,96,235 CALL MCUR
60230 24,194 JR GTV END OF
ROUTINE

60232 205,32,248 PN CALL FINDM+3
60235 24,3 JR PX
60237 205,29,248 PM CALL FINDM
60240 19 FX INC DE
60241 26 LD A,(DE)
60242 203,191 RES 7,A
60244 213 PUSH DE
60245 215 RST 16
60246 209 POP DE
60247 26 LD A,(DE)
60248 203,127 BIT 7,A
60250 40,242 JR Z,PX
60252 201 RET


```

60253 0      JFLAG  DEFB 0
60254 0      LINE   DEFB 0
60255 1      COL    DEFB 1
60256 121    MCUR   LD A,C
60257 61      DEC A
60258 50,85,235 LD (COL),A
60261 72      LD C,B
60262 13      DEC C
60263 175     XOR A
60264 71      LD B,A
60265 58,94,235 LD A,(LINE)
60268 50,93,235 LD (JFLAG),A
60271 197    ERASE  PUSH BC
60272 62,22   LD A,22 DO AN AT
WITH JFLAG AND COL
60274 215     RST 16
60275 58,92,235 LD A,(JFLAG)
60278 215     RST 16
60279 58,95,235 LD A,(COL)
60282 215     RST 16
60283 62,32   LD A,BLANK PRINT
A SPACE
60285 215     RST 16
60286 62,22   LD A,22 NOW DO AN
AT WITH LINE+B AND COL
60288 215     RST 16
60289 193     POP BC
60290 58,94,235 LD A,(LINE)
60293 128     ADD A,B
60294 50,93,235 LD (JFLAG),A
60297 197     PUSH BC
60298 215     RST 16
60299 58,95,235 LD A,(COL)
60302 215     RST 16
60303 62,62   LD A,">"
60305 215     RST 16 CURSUR
REPRINTED
60306 193     POP BC
60307 205,184,235 CJ CALL GETINF THIS
ROUTINE WAITS FOR AN INPUT WHICH IS
RETURNED IN A. WE WILL ONLY BE
INTERESTED IN THE JOYSTICK UP DOWN AND
BUTTON COMMANDS.
60310 203,79  BIT 1,A
60312 40,11   JR Z,UPA
60314 121     LD A,C
60315 184     CP B
60316 40,3    JR Z,UP1
60318 4        INC B
60319 24,206  JR ERASE
60321 6,0      UP1  LD B,0
60323 24,202  JR ERASE
60325 203,71  UPX  BIT 0,A
60327 40,10   JR Z,BUT
60329 175     XOR A
60330 184     CP B
60331 40,3    JR Z,DW1
60333 5        DEC B
60334 24,191  JR ERASE

```

```

60336 65      DW1   LD B,C
60337 24,188  JR ERASE
60339 203,127 BUT BIT 7,A
60341 40,220  JR Z,CJ
60343 201     RET    ONLY RETURN
IF BUTTON IS PRESSED. YOUR RETURN NOW
MUST TAKE THE VALUE OF B WHICH GIVES
THE LINE NUMBER (STARTING WITH 0) AND
EXECUTE THE COMMAND RELATED TO THAT
SELECTED MENU ITEM.

```

THIS INPUT ROUTINE DEPENDS UPON THE BASIC RST 56 NOT BEING DISABLED SO THE KEYBOARD CAN BE DECIPHERED. SEE THE DISCUSSION IN CODE BYTES #1.

```

60344 175    GETINF XOR A
60345 50,8,92 LD (LASTK),A RESET
LASTK TO GET RID OF ANY OLD INPUT
60348 118     HALT DEBOUNCE
60349 118     HALT
60350 118     JL    HALT
60351 62,14   LD A,14 CHECK
JOYSTICK FIRST
60353 211,245 OUT (245),A
60355 62,3    LD A,3 CHECK BOTH
JOYSTICKS
60357 219,246 IN A,(246)
60359 238,255 XOR 255 INPUT IS
ACTIVE LOW. WE WANT ACTIVE HIGH SO
INVERT.
60361 32,7    JR Z,JM FOUND NO
JOYSTICK INPUT SO CHECK KEYBOARD.
60363 58,8,92 LD A,(LASTK)
60366 254,0   CP 0
60368 40,236  JR Z,JL FOUND
NOTHING SO CHECK AGAIN.
60370 201     RET

```

THIS INPUT ROUTINE IS VERY FAST. IF YOU WANT MORE WAITING ADD MORE HALTS.

If each of your menu items is a jump to another routine without the need for a return, you can make a table of all the starting addresses and then do this bit of code which is much shorter than all the compares and jump rel.:

```

LD HL, TABLE-2
INC B (B may be zero)
XYZ INC HL
INC HL
DJNZ XYZ
JP (HL)

```

TABLE...addr of first item.

If you need to return to the menu for all routines, (which is not the case if you want to return to BASIC) you can push the return address on the stack and leave it there.

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